

We claim:

1. A system comprising
- an electrode structure which, in use, is
deployed in contact with heart tissue,
an interface including

5 a controller coupled to the electrode
structure operating to condition the electrode
structure to perform a diagnostic or therapeutic
procedure and to monitor events during the
procedure,

10 a display screen, and
an interface manager coupled to
controller and the display screen and including
a first function to generate a
display comprising an image of the electrode
15 structure at least partially while performing the
procedure, and

a second function to annotate the
image in response to events monitored by the
controller.

2. A system according to claim 1
wherein the second function generates a
marker on the image identifying an event monitored
by the controller.

3. A system according to claim 1
wherein the second function also generates
a marker on the image in response to operator input.

4. A system according to claim 1
wherein the second function includes means
for selecting a map according to which events
monitored by the controller are annotated to the
5 image.

5. A system according to claim 4
wherein the interface includes a file
manager function to store, retrieve, or manipulate

the map as a file record.

6. A system according to claim 1

wherein the interface includes a file manager function to store, retrieve, or manipulate the annotated image as a file record.

7. A system according to claim 1

the controller generates commands to establish an operating condition for the electrode structure at least partly in response to operator input, and

wherein the interface manager includes an input to receive operator input and to transmit operator input to the controller.

8. A system according to claim 1

wherein the controller is operable in one mode to pace heart tissue using the electrode structure and to record electrical activity as a result of pacing, and

wherein the second function annotates the image to map the electrical activity.

9. A system according to claim 8

wherein the image includes electrode images corresponding to electrodes on the electrode structure, and

wherein the interface manager includes an input to select an electrode on the electrode structure as a pacing electrode in response to selection of the corresponding electrode image on the display screen.

10. A system according to claim 8

wherein the image includes electrode images corresponding to electrodes on the electrode structure, and

wherein the interface manager includes an input to select an electrode on the electrode

structure as a recording electrode in response to selection of the corresponding electrode image on the display screen.

11. A system according to claim 8

wherein the second function generates an early activation map including a marker on the image where early depolarization is recorded.

12. A system according to claim 8

wherein the second function generates a fractionation map including a marker on the image where a fractionated electrogram is recorded.

13. A system according to claim 8

wherein the second function generates a good pace map including a marker on the image indicating a similarity between paced electrograms and non-paced electrograms.

14. A system according to claim 8

wherein the second function generates a concealed entrainment map including a marker on the image where entrainment is recorded.

15. A system according to claim 8

the controller generates commands to pace heart tissue or to record electrical activity in response to operator input, and

wherein the interface manager includes an input to receive operator input and to transmit operator input to the controller.

16. A system according to claim 15

wherein the input includes data fields defining a pacing configuration of the electrode structure to conduct pacing pulses from a stimulator coupled to the controller.

17. A system according to claim 16

wherein the interface manager includes a file manager function to off-load or up-load data

files defining the pacing configuration.

18. A system according to claim 15

wherein the input includes data fields defining a sequence of pacing pulses applied to the electrode structure from a stimulator coupled to the controller.

19. A system according to claim 18

wherein the interface manager includes a file manager function to off-load or up-load data files defining the sequence.

20. A system according to claim 15

wherein the input includes data fields defining a recording configuration of the electrode structure to conduct electrical signal data to a recorder coupled to the controller.

21. A system according to claim 20

wherein the interface manager includes a file manager function to off-load or up-load data files defining the recording configuration.

22. A system according to claim 15

wherein the input includes data fields defining a sequence of conveying electrical signal data from the electrode structure to a recorder coupled to the controller.

23. A system according to claim 22

wherein the interface manager includes a file manager function to off-load or up-load data files defining the sequence.

24. A system according to claim 1 or 8

wherein the first function generates a real image of the electrode structure acquired by an imaging device in the interior body region.

25. A system according to claim 1 or 8

wherein the first function generates an idealized graphical image of the electrode

structure.

26. A system according to claim 1 or 8
wherein the first function includes an
adjustment function to alter appearance of the image
in response to operator input.

27. A system according to claim 1 or 8
wherein the first function includes a
navigation function that generates in the first
display an output showing location of a roving
5 element, deployed in the patient, relative to the
electrode structure.

28. A system according to claim 1 or 8
wherein the first function includes a
navigation function that generates in the first
display a proximity-indicating output showing the
5 proximity of a roving element, deployed in the
patient, to the electrode structure.

29. A system according to claim 1 or 8
wherein the interface manager includes an
input to receive patient data identifying the
patient and an output to process patient data as a
5 data base record for storage, retrieval, or
manipulation.

30. A system according to claim 29
wherein the output processes data relating
to the image in association with the patient data.

31. A method for mapping myocardial tissue
comprising the steps of
deploying an electrode structure in contact
with myocardial tissue,
5 generating a display comprising an image of
the electrode structure,
causing the electrode structure to pace
myocardial tissue and recording paced electric
events in myocardial tissue while the image is

- 10 displayed for viewing, and
 annotating the image in response to the
 paced electrical events which are recorded.
32. A method according to claim 31
 and further including the step of ablating
 myocardial tissue.
33. A method according to claim 31
 wherein the display shows a real image of
 the electrode structure acquired by an imaging
 device.
34. A method according to claim 31
 wherein the display shows an idealized
 graphical image of the electrode structure.
35. A method according to claim 31
 and further including the step of altering
 appearance of the image in response to operator
 input.
36. A method according to claim 31
 and further including the step of altering
 an operating condition of the electrode structure in
 response to operator input.
37. A method according to claim 31
 and further including the step of
 communicating operator input using the display to
 alter an operating condition of the electrode
5 structure.
38. An interface for association with an
 electrode structure which, in use, is deployed in
 contact with heart tissue to perform a diagnostic or
 therapeutic procedure, the interface comprising
5 a display screen, and
 an interface manager coupled to the display
 screen and including a first function to generate a
 display comprising an image of the electrode
 structure at least partially while performing the

10 procedure, and a second function to annotate the image to show an anatomic feature.

39. An interface according to claim 38 wherein the interface manager includes a file manager function to store, retrieve, or manipulate the annotated image as a file record.

40. An interface according to claim 38 wherein the first function generates a real image of the electrode structure acquired by an imaging device in the interior body region.

41. An interface according to claim 38 wherein the first function generates an idealized graphical image of the electrode structure.

42. An interface according to claim 38 wherein the first function includes an adjustment function to alter appearance of the image in response to operator input.

43. An interface according to claim 38 wherein the first function includes a navigation function that generates in the first display an output showing location of a roving element, deployed in the patient, to the electrode structure.

44. An interface according to claim 38 wherein the first function includes a navigation function that generates in the first display a proximity-indicating output showing the proximity of a roving element, deployed in the patient, to the electrode structure.

45. An interface according to claim 38 wherein the interface manager includes an input to receive patient data identifying the patient and an output to process patient data as a data base record for storage, retrieval, or

manipulation.

46. An interface according to claim 45
- wherein the output processes data relating
to the image in association with the patient data.

47. A method for examining myocardial
tissue comprising the steps of

deploying an electrode structure in contact
with myocardial tissue,

5 generating a display comprising an image of
the electrode structure,

annotating the image to show an anatomic
feature, and

10 causing the electrode structure to conduct
a diagnostic or therapeutic procedure affecting
myocardial tissue while the image is displayed for
viewing.

48. A method according to claim 47
and further including the step of ablating
myocardial tissue.

49. A method according to claim 47
wherein the display shows a real image of
the electrode structure acquired by an imaging
device.

50. A method according to claim 47
wherein the display shows an idealized
graphical image of the electrode structure.

51. A method according to claim 47
and further including the step of altering
appearance of the image in response to operator
input.

52. A method according to claim 47
and further including the step of altering
an operating condition of the electrode structure in
response to operator input.

53. A method according to claim 47

and further including the step of communicating operator input using the display to alter an operating condition of the electrode structure.

5